



# OMG!

## Zombies on the Great Wall of China

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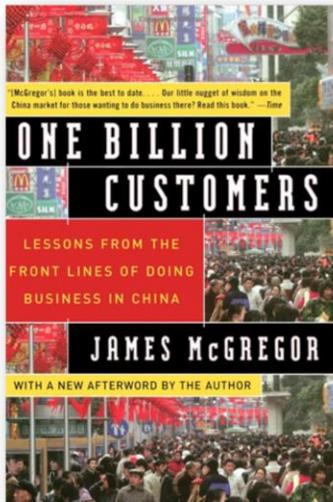
**F2P** FREE TO PLAY  
SUMMIT

GAME DEVELOPERS CONFERENCE  
SAN FRANCISCO, CA  
MARCH 25-29, 2013  
EXPO DATES: MARCH 27-29  
**2013**

Two months ago I moved back to the US after 5 years living in Shanghai, where I started and ran PopCap's first office in Asia. It was a phenomenal experience, and my presentation today is an attempt to share with you some of the most important lessons I learned there. Most of the talk will focus on how we took Plants vs. Zombies, highly popular in China but generating no revenue, and turned it into a freemium Android game tailored to the Chinese market which is now among the most successful free-to-play games at EA.

A quick note – I'm the guy presenting, but I can't take any of the credit for what we did with this game. The entire project was conceived of, and executed by, our superbly talented local team in Shanghai. They should get all the credit – I just made the powerpoint!

I want to start, however, by sharing some of my broader lessons about succeeding as a western company in China itself.



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Most western companies are coming to China for one reason.  
Money.

They see this as a big market, and they want in, and books like "One billion customers" don't help.



The problem is that, more often than not, coming in with such high expectations leads to failure because it leads to bad choices. China is littered with corpses of western companies who made these mistakes. The common pattern is that you:

- a) Hire too fast
- b) Hire the wrong people
- c) Copy your product or market strategy from another market

And then when you hit obstacles, and you fail to make a fortune in your first year, your board loses patience and pulls the plug.



# Challenges in China

- High piracy
- Highly competitive market
- “Ready, Fire, Aim” mentality
- High staff turnover
- Top down management style
- Low quality

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Consider this list of challenges in China. This is what expats complain about when they get together at American Chamber of Commerce events in Shanghai. However if you think of China as a source of innovation, each of these challenges becomes a strength:

# Challenges in China

## Strengths

- ~~High piracy~~  • Efficient distribution of great IP
- Highly competitive market
- "Ready, Fire, Aim" mentality
- High staff turnover
- Top down management style
- Low quality

*PopCap*

Piracy becomes an extremely efficient, low-cost way to build your audience and brand.

# Challenges in China

## Strengths

- ~~High piracy~~ → • Efficient distribution of great IP
- ~~Highly competitive market~~ → • Free testing of new ideas
- "Ready, Fire, Aim" mentality
- High staff turnover
- Top down management style
- Low quality

*PopCap*

The fact that hundreds of companies will copy you the minute you become successful, means that you get free testing of new business models. You can see which of them are successful, and copy THEM.

# Challenges in China

## Strengths

- ~~High piracy~~ → • Efficient distribution of great IP
- ~~Highly competitive market~~ → • Free testing of new ideas
- ~~"Ready, Fire, Aim" mentality~~ → • Fast iteration; flexible mindset
- High staff turnover
- Top down management style
- Low quality

*PopCap*

The lack of long-term strategic thinking starts to make more sense considering how fast the market is changing, and you can start to appreciate how quickly your team can pivot to try new ideas.

# Challenges in China

## Strengths

- ~~High piracy~~ → • Efficient distribution of great IP
- ~~Highly competitive market~~ → • Free testing of new ideas
- ~~"Ready, Fire, Aim" mentality~~ → • Fast iteration; flexible mindset
- ~~High staff turnover~~ → • Continuous upgrading of talent
- Top down management style
- Low quality

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It's true that many companies experience high turn-over, but this also means you can rapidly improve the caliber of talent you hire and make sure they are aligned with your mission.

# Challenges in China

## Strengths

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- ~~High staff turnover~~ → • Continuous upgrading of talent
- ~~Top down management style~~ → • Rapid decision making
- Low quality

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The autocratic top-down management style of many Chinese managers may not seem very enlightened, but it does lead to strong alignment and rapid decision making.

# Challenges in China

## Strengths

- ~~High piracy~~ → • Efficient distribution of great IP
- ~~Highly competitive market~~ → • Free testing of new ideas
- ~~"Ready, Fire, Aim" mentality~~ → • Fast iteration; flexible mindset
- ~~High staff turnover~~ → • Continuous upgrading of talent
- ~~Top down management style~~ → • Rapid decision making
- ~~Low quality~~ → • "Minimal viable product"

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And finally, the market's willingness to tolerate lower quality means you can roll out a "minimal viable product" even more quickly, a strength when you're trying to move quickly.

It took me several years to fully embrace what I'm describing here, but once I did, things really started to take off for us.



Let me share an example. Shortly after the release of PvZ, we noticed a rapid rise in the number of counterfeit products for sale on TaoBao, the local eBay equivalent. When the number of items passed 50K we realized "this is the market telling us something." We had never done merchandising at PopCap – we're a game company! However we decided to get into the merchandise business.

## Merchandising



And now, merchandising is one of our larger revenue shares in China, nearly 30% of the total last year. This is a business that started in China, but now we are bringing to the US and other markets.



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More recently we've branched out into comics and books, the first time we've tried this anywhere in the world.



More than 8,000,000 sold!

Again, this has been surprisingly successful – we've sold more than 8M books to date, a huge number even by Chinese standards.



*PopCap*

As a further example of what can happen when you try to apply a western mindset in China, let me share a cautionary tale. One of the biggest manufacturers of counterfeit PvZ plush toys was a company down in Guangzhou. It was especially frustrating for us because we would see their products everywhere in the street markets of Shanghai. We approached them several times to try and get them to pay us a license, but they refused. Finally, through our lawyers, we staged a raid and confiscated several hundred thousand counterfeit plush toys. Victory, right? Well, the result of our raid is that these counterfeit toys vanished in the street markets, and our legitimate toys were too high quality and too expensive to replace them.

So what happened? It started becoming harder for us to do new deals, because potential partners would tell us that PvZ was no longer "hot" because they no longer saw PvZ toys in the market! So by drying up the supply of cheap fakes, we actually hurt ourselves!

# PvZ Great Wall Edition



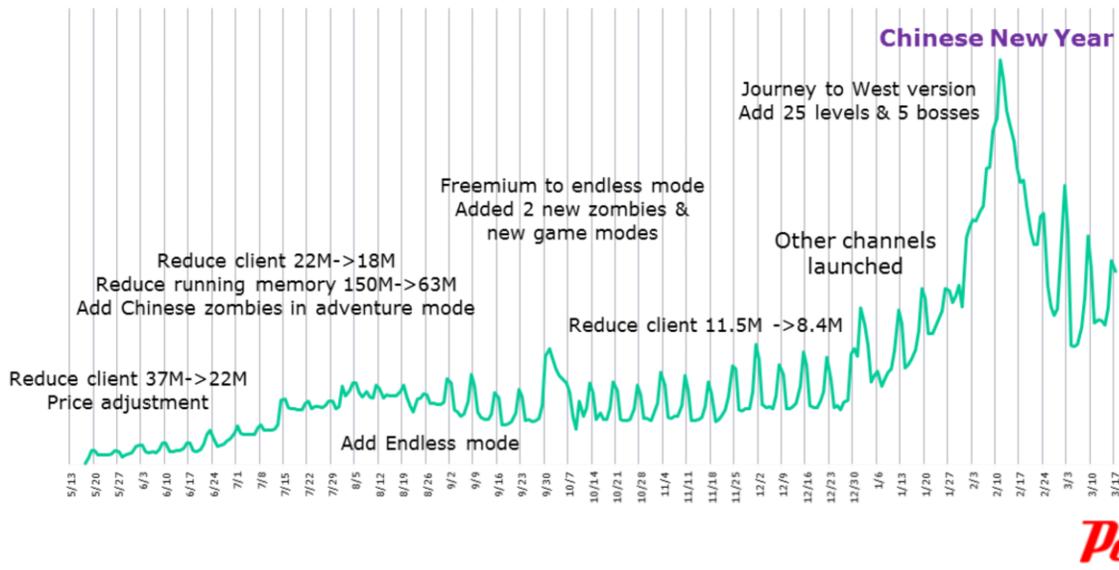
(launched 5/18/2012)



This now brings us to the launch of our PvZ Great Wall edition. At the time we launched this, the only version of PvZ we had in the market was a localized version of premium PvZ for iOS. It sold well, but piracy was high, and the Android market was starting to really take off. In partnership with Tencent, we decided to launch a free-to-play version for Android, and to provide an incentive to install it, we added some new Chinese-themed content.

Let me show you the trailer.

## Gross Revenue (USD)



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This chart shows the gross revenue for the game since launch. I'm afraid I can't show the vertical scale, but it's enough revenue that this is now the #4 mobile game across all of EA in terms of revenue from microtransactions – despite being just in China!

The most important thing here, however, is the steady growth in the numbers over time, demonstrating the importance with a free-to-play game of continued operations and investment. Obviously this game has benefited from the growth in the Android market, but it also represents 30% growth over time in both ARPU and PU%.

You can also see the importance of holiday seasons: summer holiday, October holiday, new years, and of course Chinese new years.

# Added in-game transactions



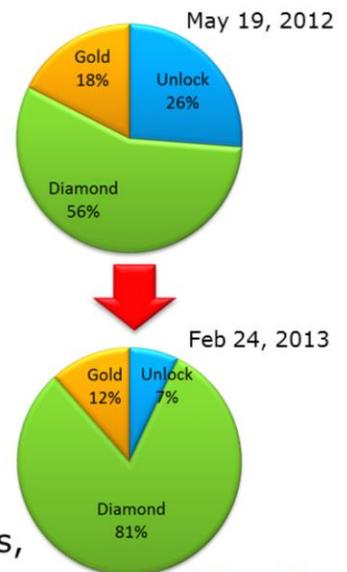
**Pay Wall:** Limit at level 1-6



**Gold:** Unlock mini-games, survival & endless modes, buy reusable items



**Diamonds:** Buy consumable items, continue game over



*PopCap*

So what exactly did we do? First, we added a variety of in-game transactions. We added a pay wall at level 1-6 in adventure mode where you have to pay 4RMB (about \$0.60) to continue. Next we added a soft currency, gold coins, used to unlock mini-games and the new game modes – you can earn this through grinding, by sharing on Weibo, or simply purchase.

Finally, we added a hard currency, diamonds, used to buy consumable items or boosts.

We also made the game a little harder, to encourage more consumption of these consumables.

What's especially interesting is how, over time, a larger % of revenue is coming from these in-game consumables.

### Top 5 Consumable Items

<b>34%</b>		<b>Bomb Boost: (\$.20)</b> Clear all zombies
<b>28%</b>		<b>Sun 500: (\$.09)</b> Add 500 suns
<b>10%</b>		<b>Sun 2000: (\$.27)</b> Add 2000 suns
<b>9%</b>		<b>Gatling pea: (\$.30)</b> Buy once
<b>5%</b>		<b>Cob Cannon: (\$.30)</b> Buy once

### Item Usage

**65%** Adventure Mode



**18%** Endless Mode

**17%** Survival Mode



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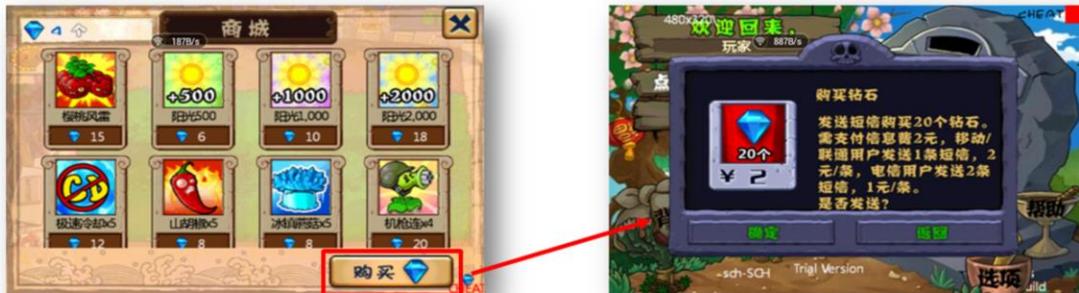
Here's a breakdown of the top 5 consumable items, to give you an idea for what they do.

We added a big "boost" button in the game, and anytime you can click that button, which pauses the game and brings up the store, pick an item, purchase it, and it takes effect immediately.

What's even more interesting is where these items are being used --- 65% in adventure mode! This is a mode that's designed to be fun to play without any items.

# Direct carrier billing

- No account and passwords needed
- Stay in game, only 2 clicks to pay



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We also work directly with the carriers to make the purchase as seamless as possible. Just two clicks to buy more diamonds. That sort of friction-free experience is so important.

# Added new content

**Endless Mode:  
8/1/12**



**Last Stand Endless:  
10/1/12**



**Journey to the West:  
1/31/13**



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We've also continued to add new content to keep the game fresh and interesting. We added new modes, and most recently our most expansive content expansion yet – the "Journey to the West" edition, which plays off the most famous Chinese mythology of them all.

# Journey to West zombies (1)



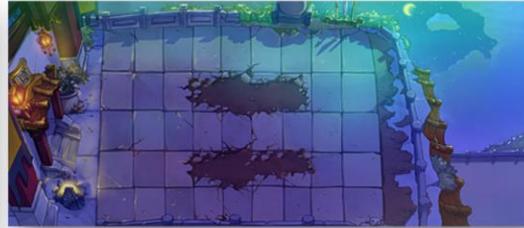
For example, here's the all-new set of journey to the west zombies.... These are just reskins. They're not adding more functionality. But just reskinning existing zombies is enough to refresh the game! The guy on the right replaces Zomboss, the guy at the bottom replaces Gargantuar.

## Journey to West zombies (2)



Here you can see replacements for balloon zombie, zomboni driver, bobsled team, etc.

# Journey to West maps



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And some of the backgrounds... again, these locations are taken from scenes in the famous "journey to the west" story.

# Optimization

*File Download Size*

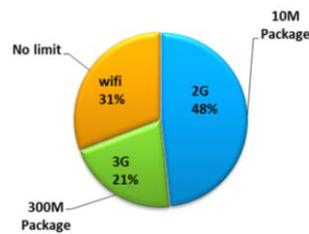
**72M→8M**

**150M→48M**

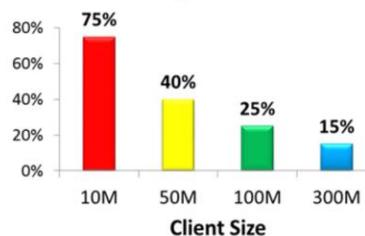
*Memory Runtime*

Low-end Devices { *RAM : 256MB +*  
*ROM : 512 MB +*  
*Android OS 2.2 +*

## Network connection



## Install/Download



Another major task was the convert the game for Android. This is especially challenging because of the vast number of low-end android devices in China. Just a year ago we were talking about <\$100 android smartphones, and now already we're talking about \$65 android devices!!! On the other hand, these devices are cheap because of so little memory and power, and we learned quickly that our game would crash if we weren't careful. So we had to reduce the memory runtime from nearly 150Mb to < 50MB.

Also, download size really matters since most users are on limited data packages. Every time we reduced the download, the number of installs would go up.

<b><i>Merging &amp; reusing images:</i></b>	<b>↓ 34M</b>
<b><i>Music: 13 songs to 1</i></b>	<b>↓ 12M</b>
<b><i>Sound effect: WAV to OGG</i></b>	<b>↓ 3M</b>
<b><i>Fonts: Remove TTF, system only</i></b>	<b>↓ 3.6M</b>
<b><i>Picture &amp; Animation:</i></b> <b><i>24-bit PNG to 8-bit PNG</i></b>	<b>↓ 11M</b>



This is an example where low quality expectations really help us out. To get the size down so much we had to really cut quality, but there have been no complaints. To the contrary, every time we reduce size we get more installs! We're now about to create an Android "HD" version, however, for higher end users.

## Daily Installs



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This shows you high installs have grown over time. It also shows the spike at the first of every month as data plans reset.

# Add distribution channels



Tencent



91.com



UC



Baidu



安卓市场



豌豆荚



d.cn



360



AppChina



MI Store

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Another change we've made recently is launch on additional app stores. There is no Google Play in China, so the market is fragmented. Tencent operates one of the largest, but that's still only 40% market share. To reach the rest we've had to support more than a dozen different stores, each with its own requirements. But together these have nearly doubled our revenue.

# Add anti-hacking measures

- MD5 verification code for save-game file
- Code obfuscation to avoid memory hacks
- On-going battle...

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Hacking is also an issue – any successful game in China immediately attracts strong hacker interest, which quickly becomes an arms race. We've so far implemented counter measures to the most obvious hacks, but this is a never ending battle.

# Pay wall A/B test #1

Week of Nov 21-27

Android build / mainland China



Test Case	Installs	Revenue (RMB)	Paid Users	Paid User %	Revenue/Install
Remove pay wall	82,592	90,111	13,859	8.8%	1.1
Keep pay wall	280,274	824,293	87,080	12.4%	2.9

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Finally, before we wrap up, I thought it might be interesting to share the results of some A/B tests we've done to show how sometimes the optimal strategy is not intuitive. Consider the 4 RMB pay wall. When we realized that 81% of the revenue was coming from the use of consumable items, we assumed that removing the pay wall would allow even more users to enjoy the game, and thus increase the item revenue. So we ran a one-week A/B test with and without the pay wall, and were surprised to discover that the revenue per install is nonetheless higher with the pay wall than without.

Apparently users who aren't willing to pay for the pay wall are unlikely to ever buy items in-game anyway. And users who are willing to buy items, will pay the nominal fee for the pay wall. So we've left it in.

# Pay wall A/B test #2

Week of Dec 22-29

Android build / mainland China

Test Case	Unlock revenue / install
Pay wall at 1-6	100%
Pay wall at 1-3	132%

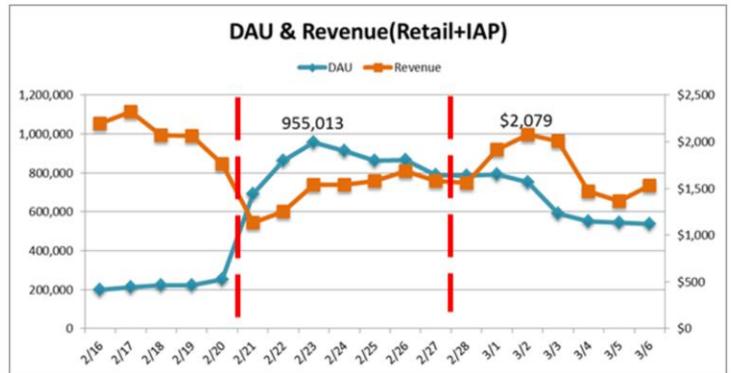


Armed with that result, we then tried moving the pay wall even earlier – to level 1-3, right after the tutorial, and in fact the revenue per install went up again! So now the pay wall is right after 1-3 on Android.

# Free App of the Week experiment

Week of Feb 21

iOS build / mainland China



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Another interesting result from just last month is Apple's "Free app of the week" promotion which we participated in via a global program. On iOS, our game is still sold with a premium model, and we were excited by this promotion as a test for whether we should consider switching iOS to F2P just like android. The results told us "no" – at least for now, our iOS users are more interested in buying the game w/ premium model than in-game purchase revenue.



**Top grossing rank dropped from No.13 to No.35**

**PopCap**

In fact, you can see that making the game free, and hoping that in-app purchase revenue alone would be enough to support it, didn't work. The game dropped from #13 to #35 top grossing.

So that's a good reminder that what works on Android won't necessarily work for iOS – we need to keep thinking about those markets very different.

# What's Next?

- Continue operating/improving Great Wall
- Bring lessons back to Seattle
  - Android
  - Free-to-play
  - Merchandising

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So to wrap up... if you're thinking about entering the China market, don't just think about all the money you could make there because you'll be disappointed. Think about how you can use experience in China to learn valuable lessons to take back to the rest of the company, and you'll ultimately be more successful – and more profitable!



I'll close with this photo from my farewell party in China – the experience of setting up shop in China, figuring out the right path, and then seeing that business not only turn a profit, but create valuable learnings which can be shared with the rest of PopCap, has been a fabulous once-in-a-lifetime experience, and I'm grateful to everyone on the China team who helped make everything in here happen.